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ABSTRACT

This study examines the academic performance of students in New York City's elementary and middle schools, investigating variations across grades and schools and documenting differences in student and teacher characteristics and the pattern and level of expenditure between low, middle, and high performing schools. The study reports averages of student, teacher, and expenditure variables for each level of performance. The study used 2 sources of 1997-98 school-level data published by the New York City Board of Education (BOE): "School Based Expenditure Reports" and "Annual School Reports." The study also used data obtained directly from the BOE to augment measures of school-level student performance on citywide reading and mathematics examinations. Results confirmed years of previous research: low-performing New York City schools overwhelmingly serve students of color who are poor, are limited English proficient, have consistently low attendance, and are taught by teachers who have very limited experience and earn the lowest average salaries. Moreover, these low performing schools receive a higher per pupil expenditure than the aggregates for middle and high performing schools. There is a higher percentage of children in full-time special education in the lowest performing schools. Appended are extensive tables of research data. (SM)

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ACADEMIC PERFORMANCE, CHARACTERISTICS AND EXPENDITURES IN NEW YORK CITY ELEMENTARY AND MIDDLE SCHOOLS

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ACADEMIC PERFORMANCE, CHARACTERISTICS AND EXPENDITURES IN NEW YORK CITY ELEMENTARY AND MIDDLE SCHOOLS

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I. Introduction

The academic performance of New York City elementary and middle school students varies widely across grades and schools, as do the characteristics of students, teachers and the expenditures allocated to the schools. In this study we examine these variations, documenting the differences in the characteristics of the students and teachers and the pattern and level of expenditures between low, middle and high performing schools at the elementary and middle school level. We report averages of student, teacher and expenditure variables for each level of performance, using two performance measures. The purpose is to paint a statistical portrait of New York City's high, middle and low performing schools in order to gain insight into the similarities as well as the differences between them. These differences need to be interpreted with caution because of the difficulty of distinguishing the causes and effects of performance on the one hand and characteristics and expenditures on the other hand. This work lays the foundation for future work that will seek to disentangle the factors determining the differences in the academic performance of these schools. We examine the results of our analyses to draw out the implications for policymakers where possible and to gain insight into directions for the future work.

This study only became possible quite recently. Four years ago New York City began producing annual school-based budget and expenditure reports, which detail school-level

spending. Combining those reports with the existing annual student-level report card data, we are able to examine the level and pattern of school academic performance, characteristics, and resources across New York City's public elementary and middle schools. The large size of the New York City school district and the wide range of students, teachers, and schools make this effort particularly important. While most districts in the state and country have about five schools (typically one high school, one or two middle schools and two or three elementary schools), New York City has roughly 880 elementary and middle schools and more than 200 high schools. Further, with more than 1.1 million students enrolled, New York City public schools educate roughly a third of the students in New York State and more children than are enrolled in public schools in 46 other states. The large number of children and schools in this district makes it particularly important to understand the differences between low and high performing schools, to gain insight into how to effect changes in outcomes, and to improve the academic performance across the board.

II. Data

Sources

This study primarily relies on two sources of 1997-98 school-level data published by the New York City Board of Education (BOE): *School Based Expenditure Reports* (SBER) and *Annual School Reports* (ASR). The SBER provide rich and detailed data on school-level spending. They categorize all school spending by function (classroom instruction, district costs, etc.,),[1] by student type (general education, part and full-time special education)[2], by source of

[1] There are 45 detailed functional categories of spending and 15 summaries of the detailed functions. The functions are categorized by three broad groupings; i) direct services to schools, ii) district/superintendency costs, iii) system-wide costs. Further categorization occurs within each of these three groups. For example, the direct services to schools grouping reflects spending on classroom instruction, instructional support, and other functions. Another

funds (city funds plus state operating aid and federal, state and private grants)[3] and by object (salaries, fringe benefits, and other than personal services). The ASR provide school-level data on student and teacher characteristics and student academic performance. In addition to these two sources, the study uses data obtained directly from the BOE to augment measures of school-level student performance on citywide reading and mathematics exams. Table II A presents descriptive statistics on all variables used in the report and Table II B shows the variable name, description and source of each variable.

Student Performance

Student performance on New York City's reading (CTB) and mathematics (CAT) standardized exams are reported for 3rd through 8th grades for each school. The BOE includes data on the number of students for whom a test form has been prepared and the number of students actually taking the test.[4] Thus, the percentage of students taking the exam is calculated by dividing the number taking the test by the number of forms prepared. The BOE reports scores in a number of ways; we use Normal Curve Equivalents (NCEs), whose technical characteristics are explained in the methods section. In addition, since the BOE reports the number and proportion of students in each of four quartiles of performance, this study combines the figures for the two highest quartiles to report the percent of students at or above the 50th percentile. As Table II A shows, across all schools with a third grade, on average 88% of a school's third grade students took the reading test and those students had an average NCE score of 51. (All numbers

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level of functional detail is available as well, for example classroom instruction is a sum of expenditures on teachers, textbooks, professional development and other.

[2] Part-time special education students are a sub-set of general education students who are in need of resource room-type services.

[3] Federal, state and private grants sources are further identified by the specific grant or type of grant, such as federal Title I or private foundations.

are rounded to two digits in this discussion although not in Table II A.) Nearly 52% of third grade test takers scored at or above the 50th percentile. In order to analyze student performance across all grades for elementary and middle schools, the detailed data by grade are combined into an *all grades* school number. Thus, on average 91% of the students in all grades in a school took the reading exam and on average half of test takers in all grades (3rd through 8th) scored at or above the 50th percentile.

Special Education

Students in special education have been identified as in need of modified instructional settings. These students alternatively are referred to as full-time special education students. Depending on sub-district and school practice, full-time special education students may spend part or most of their day in general educational settings, or they may be in their own classrooms. On average over 6% of students in elementary and middle schools are classified as special education students. The range across schools is quite wide, from 0% to 38% of all students in a school. Students in general education programs who have been identified as in need of resource room-type services, alternatively referred to as resource room or part-time special education students, spend most of their day in general education settings.

Socioeconomic Variables

The ASR school-level data include information on student demographic and socioeconomic characteristics. The race/ethnicity of students is reported in four groups; white, black, Hispanic, and Asian/Pacific Islander. On average, elementary and middle schools are 17% white, 36% black, 37% Hispanic and 10% Asian students. Nearly 49% of students in

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[4] Students who did not take the exam fall into three reported categories, i) absent, ii) excused, iii) exempt.

elementary and middle schools are female and nearly 8% have immigrated to the United States within the past three years. Approximately 75% of elementary and middle schools students are poor, as measured by whether a student is eligible for free or reduce priced lunch. Nearly 16% in the average school are identified as having limited English proficiency (LEP).

Teacher Characteristics

The ASR is the source of information on teacher characteristics and the SBER is the source of information on average teacher salaries and expenditures. Teacher characteristics such as licensure and type of assignment, stability, experience and education are reported as proportions in dichotomous terms. For example, teacher experience is reported as the percent of teachers in a school who have been teaching anywhere for five or more years (62%) and not as the average number of years of experience. The average teacher salary for each school is derived from information on the number of teachers and teacher expenditures as reported in the SBER and other information provided by the BOE's division that prepares the SBER. The additional information on teacher expenditures further classifies spending in terms of salaries for full-time equivalent teacher positions, salaries paid to teachers for using their prep periods, and amounts paid to per session or per diem substitute teachers. The average teacher salary in elementary and middle schools is $43,257.

Resources

As mentioned above, the SBER are quite detailed and allow for the reporting of a wide variety of resource measures. The groups of measures described in this section rely on a basic understanding of the student counts and classifications. Restating what has been described above and in a footnote, the SBER provide student counts for three types of students; general

education, part-time special education and full-time special education. Part-time special education students are a subset of general education students. Thus, the total number of students in a school is equal to the sum of general education students and full-time special education students.

The first resource measure that is presented in Table II A is the pupil-teacher ratio. As explained later in the report, this is NOT a measure of class size, rather it is calculated as the sum of all students (general education plus full-time special education) divided by the total count of full-time equivalent teacher positions. This definition highlights the limitations of the data. Ideally one would like to sort out the general education teachers from the special education teachers because class size regulations vary for the two groups of students and may even vary within the full-time special education population of students. But the requisite breakdown of teachers is not included in the SBER, therefore we aggregate all students and divide by all teachers.

As alternative measures of resources, a variety of per pupil expenditures are analyzed in this report. While there is limited flexibility with the SBER data in matching teachers and student types, there is more flexibility in matching expenditures on the basis of student type. Overall spending per pupil is a combination of spending on direct services to schools, including teachers, textbooks, and building services, and district and systemwide costs and obligations, such as administrative overhead and debt service. Therefore, a subset of the functional details within the three broad areas of spending are presented as well.

The first set of per pupil expenditures represents spending for all students in a school. On average $8,359 is spent per pupil. This per pupil spending figure combines resources spent on

general education, part-time special education and full-time special education students. It overstates spending on the majority of students, those who are in general education, and understates spending on the minority of students, those who are in full-time special education, because these two particular types of students have radically different spending on a per pupil basis. For example, spending per full-time special education student averages $21,812 for elementary and middle schools while spending per general education student averages $7,017. While resources for special education students may be used on behalf of all students, in this particular analysis we cannot control for differential rates of special education students and differential costs of the varying needs of special education students. Therefore, per pupil expenditures for the different types of students are reported as well.

Breaking down the $7,017 per pupil expenditure for the general education student, $6,210 is spent on direct services with $4,066 on classroom instruction. The great majority of classroom expenditures are on teachers ($3,523 per pupil). While spending on other classroom instruction categories, such as educational para professionals ($164), text books ($74), and professional development ($108) are significantly less than that on teachers, it is important to understand how schools and their sub-districts are spending resources.

Because a sub-set of general education students are in need of and receive resource room services, spending per general education student understates the amount of resources spent on their behalf. There are at least two different ways to conceptualize spending that incorporates resources spent on part-time special education students. First, expenditures on behalf of the general education students, who are also in part-time special education, are spread across all general education students. While a large majority of general education students are not

identified as in need of resource room services, spreading the part-time special education expenditures across all general education students gives a measure of resources available for a body of general education students that may vary in needs across schools. Essentially, the full-time special education students and spending on their behalf are excluded. The average per pupil expenditure with part-time special education resources per general education student is $7,506 with $6,663 on direct services. Second, expenditures on behalf of part-time special education students are calculated per part-time special education student and are added to the basic general education expenditure per general education student. This measure represents the total amount spent on behalf of a general education student who is also in part-time special education, assuming that expenditures on part-time special education are spent only on behalf of those students. The per pupil expenditure is $14,635 with $13,294 on direct services. These figures are far below that of full-time special education students and double that of spending per general education student.

In the case of part-time and full-time special education students, a significant proportion of per pupil expenditures are for instructional support services, such as referral and evaluation services, and ancillary support services, such as transportation. The per pupil expenditures on teachers for special education students is higher than those for general education students, because of the more stringent class size limitations in special education settings.

Student Counts

Each of the two main sources of data, SBER and ASR, provide student counts by similar categories of general education, part-time special education or resource room, and full-time special education. The per pupil expenditures are calculated using the student counts in the

SBER database and the socioeconomic characteristics are calculated using the student counts in the ASR. Therefore, we report descriptive statistics for both sets of student counts in Table II A and in the results tables, Tables V A and V B. On average, elementary and middle schools have 870 students with the smallest school having 66 students and the largest having 2,671 students, according to the SBER data. Even though the two sources of data draw student counts from the same information system at the BOE, there are differences that may be the result of the timing of the data collection. The differences for the most part are more pronounced in the count of general education students. Across both sources of data, each school has an average of approximately 50 students in part-time special education and 50 students in full-time special education.

III. Methods

The first step in examining differences in the characteristics and expenditures of schools by performance level is to identify a method for dividing schools into performance groups. These groupings require decisions about which performance measures to use, how many different performance groups to use, whether performance measures can be combined and whether grades can be combined into schools. We discuss each of these issues and its resolution below.

Choosing Performance Measures

Performance at the elementary and middle school level is a multi-dimensional concept that can include measures such as test scores, promotion rates, attendance rates, and, conceptually, more qualitative evaluations by adults of pupil progress. For the purposes of this report we focus on scores on New York City's reading (CTB) and mathematics (CAT) tests,

which are given to third through eighth graders each spring. While test scores have some deficiencies as performance indicators, it is important to use measures that are available and reasonably consistent for the majority of schools and students in each grade across the city. In this report we use levels of scores and not changes in the scores or value added measures.

Test scores can be reported at the school level in a variety of ways - raw scores, percentiles, grade equivalents and Normal Curve Equivalents (NCEs). Median scores, mean scores, or even percentage passing can be used. In these analyses, we use the average NCEs for each school, which are available since the reading and math tests are norm-referenced. NCEs are an accepted way to convert raw scores into a scale with equal intervals between scores. For example, the "distance" between an NCE score of 50 and 51 is the same as between a score of 75 and 76. That is, the increase in performance indicated by a one point increase in an NCE score is the same whether the increase is from 50 to 51 or from 75 to 76. In contrast, the distance between the 50th and 51st percentile is smaller than between the 75th and 76th percentile. This is because more students are clustered around the 50th percentile and thus it does not take as large an increase in the score interval to encompass an additional one percent of students as it takes at the 75th percentile, where there are fewer students clustered. NCE intervals do not contain equal percentages of students; rather the intervals are constant and the percentage of students in each interval varies. This feature of equal intervals allows analysts to manipulate the scores mathematically (aggregate across students, calculate averages and standard deviations, for example) and compare scores across schools, without violating critical statistical properties of the resulting summary statistic.

Defining High, Average, and Low Performing Schools

Based on the NCEs for math and reading, we assessed different ways to divide schools into performance groups. The essential question is: How many different groups will the data support, given that we need to have a reasonable number of schools in each to calculate the average values of characteristics and expenditures? Groups also need to be different enough to support inferences that the mean performance of the schools differs across groups. We looked for any natural breakpoints (places where there were gaps between scores) and found none. We tried using the national standard deviation for the NCEs for individual students (21.06) to divide schools by standard deviations, but found very few schools in either the high or low performing tails because the New York City grade and school standard deviations are much lower (around 8.7 to 12). This is not surprising since our analyses do not use individual student data, but rather data aggregated to grade and school NCE. We settled on use of the New York City grade or school standard deviations of NCEs to form three performance groups for each grade or school and test, based on schools whose mean NCE fell more than one standard deviation in either direction (positive or negative) from the mean NCE. Thus, *high performing* schools are those whose mean NCE score is greater than one standard deviation from the mean NCE, *low performing* schools are ones whose mean NCE score is less than one standard deviation from the mean NCE, and *middle performing* schools are ones whose mean NCE score falls in between plus and minus one standard deviation from the mean NCE.

Combining Tests and/or Grades

Using standard deviations of NCEs for reading and mathematics tests in order to group schools, we then analyzed whether we could combine the two tests and the grades (or alternatively use just one test and one grade as representative of an all tests and grades). In order

to use just one test or grade, we would need to be confident that that there is high agreement between tests and between grades. We found that that while the correlations in NCE scores were relatively high, we were not confident that they are high enough for us to obtain the same categorizations of schools if we chose just one test and one grade. Our analyses involved calculations of the Pearson bivariate correlations between NCEs for each pair of tests (reading and math) at a grade level and then for pairs of different grade levels for each test. We also constructed tables to show the amount of agreement in the classification of schools by alternative tests at the same grade and by the alternative grades for the same test, again using the standard deviations to divide schools into three performance groups. Table III A shows an example of these comparisons. The top part of the table illustrates the correlation and agreement in classifications using third grade reading and math scores. The correlation, .899, while high for many purposes, in our judgment is not high enough to warrant saying the two tests give the same information. The table shows the number of schools that would be classified the same and differently using the two scores. The diagonals illustrate schools falling in the same classification and the off-diagonals illustrate the number of schools classified differently by the two tests. The table shows that there are significant numbers of schools on the off-diagonals, supporting our conclusion that the correlations between tests are not high enough to simply use one or the other of them.

The bottom part of the table shows the agreement between reading tests in the 3rd and 5th grades. Again the correlation is not extremely high for the purposes of classification and the table shows significant disagreements in classifications of schools.

Correlations between tests in other grades and the same tests across different grades are not exactly the same as ones shown in Table III A, but result in the same conclusions. We cannot *a priori* eliminate any tests or grades in our efforts to classify schools. Because the use of two tests and eight grades will lead to many tables of results and because New York City classifies its schools into elementary and middle schools, we have added two aggregations that correspond to the New York City classifications of schools. We show groups of schools based on the reading and math scores, averaged at the elementary and middle school levels. In addition to the need to average over grades, not all schools classified as one type contain the same grade spans. We ignore this latter problem for these classifications and adopt the New York City labels for what is an elementary and what is a middle school, no matter what the grade spans are in particular schools.

Weighting Averages or Not

A final methodological consideration involves how the averages for the characteristics and the expenditures will be calculated for each performance group. To be more concrete, given performance groups based on 3rd grade reading scores, we calculate the average percent of students in special education, the average percent of teachers who are licensed, the average teacher salary etc. There are two ways to calculate these averages – unweighted and weighted. If we calculate a simple unweighted average – add up all the values in the group and divide by the number of schools – we will obtain an "average school" number. On the other hand, if we weight each number for each school by the number of students in the school, and then divide by the number of students, we will get an "average student" number. This latter number will weight

the larger schools more heavily. Because the two may present different patterns and because *a priori* one choice is not clearly the right one, we calculate both.

How many tables will our methodological choices produce? Table III B shows that the answer is 32. There are six grades (3 to 8) and two levels of schools (elementary and middle); there are two tests and two ways to calculate mean values. As the table shows, combining the alternatives leads to 32 tables. While this represents the universe of possibilities, it is not useful because there are too many results to discuss meaningfully in this report. In the results sections, we therefore discuss the results by elementary and by middle schools based on their aggregated performance in reading, using unweighted averages for characteristics and expenditures. All other tables of results are in the appendices and their data will be used in future studies. Although individual schools are classified differently depending upon test and grade used for classification, the mean values of student and teacher characteristics as well as of expenditures across performance levels do not vary much by test or grade in their general pattern. (Magnitudes may vary and there are some exceptions.) Thus, when discussing empirical results, we analyze aggregate elementary and middle school reading results as a way of reducing a large volume of data to some understandable, interesting and important findings.

IV. Conceptual Issues

As described above, our analysis includes variables describing characteristics of the students, characteristics of teachers, and patterns of expenditures and resources allocated to the schools. These variables were chosen because previous empirical research or theory suggest that they are related to school performance – either because they are thought to influence performance or because they are thought to be determined by performance. In many cases

'theory' suggests that the direction of causality can go either way. More specifically, we can describe three general pathways through which these variables are related to performance. First, the variable might affect performance directly – as an example, smaller pupil-teacher ratios might lead to better classroom interactions and better performing students. Second, the variable might be itself determined by performance – as an example, better performing schools may be more engaging (demanding) for students and might lead to higher attendance or, alternatively, the school district may target more resources at lower performing schools in an effort to boost performance in successive years. Finally, the relationship might be driven by 'school selection' by parents, by students or by teachers. To the extent that they choose between schools, parents, students and teachers of different types may sort themselves into school communities that are significantly different from one another. If they choose based upon school performance, there will be differences by performance level. Thus, if non-poor parents have more flexibility in choosing schools, their choices will contribute to a higher concentration of non-poor students in high performing schools. Alternatively, if more experienced teachers have more flexibility and prefer high performing schools, these schools will have higher concentrations of experienced teachers. The analyses in this study cannot disentangle the direction of causality, or the effects of selection. Instead, we try to gain some insight into the magnitude and importance of different effects.

V. Empirical Analysis

As noted above, the analyses here are based on tables of elementary and middle school reading performance, presented in Tables V A and V B.

Socioeconomic Characteristics of Students

Our data include some information on the demographic backgrounds of the students in addition to variables that describe the special educational needs of students.

There is a great deal of existing research that has investigated the relationship between demographic characteristics and school performance and some of the empirical findings are disturbing. The results of previous studies would suggest that students in low performing schools will be disproportionately black, Hispanic, poor, limited English proficient and have higher mobility and lower attendance; high performing schools will be disproportionately Asian and white, and have less poverty, fewer limited English proficient children, and better attendance. Unfortunately, these patterns emerge quite strongly from our analysis of New York City's schools.

Before turning to the results of specific analyses, we should point out one overarching finding. With relatively few exceptions, the values of the analyzed variables consistently (monotonically) increase or decrease with performance. As an example, attendance is lowest in the low performing schools, somewhat higher in middle performing schools, and highest in the high performing schools. While this is not evidence of causality, it does suggest the relationship between performance and these variables is consistent and stable.

Elementary Schools

Beginning with the performance of elementary schools in reading (Table V A), the racial and demographic composition of high, low and middle performing schools differ markedly. While the low performing schools are roughly half black and half Hispanic (only 2% of the students are Asian and 1% white), high performing schools are roughly half white, 13% black,

17% Hispanic and 19% Asian. As expected, poverty is more prevalent in the lowest performing schools where almost 94% of the students are eligible for free or reduced price lunch. It is noteworthy, however, that poverty is common in even the high performing schools, where almost 40% of the pupils are eligible for free or reduced price lunch. Roughly 21% of the students in low performing schools are limited English proficient (LEP), only slightly higher than the 17% in middle performing schools, but these are significantly higher than the 11% in the high performing schools. The distribution of recent immigrants is interesting – low performing schools have the smallest representation at 5% while high and middle performing schools are roughly 8.3% recent immigrants.

Middle Schools

Middle schools classified by reading performance show similar demographic patterns (Table V B). High performing schools have more whites and Asians, low performing schools more blacks and Hispanics, but the differences across performance levels are less pronounced than in elementary schools. That is, high performing middle schools are roughly 38% white, compared to 51% in elementary schools. Again, representation of children with limited English proficiency and the representation of poor children decline with performance. Interestingly, while elementary schools are consistently 48 or 49% female, in middle schools, the percentage female increases with performance from a low of approximately 47% in the low performing schools to a high of approximately 52%. (Note that this pattern, although not the magnitude, is the same in the analyses based on performance on math tests. See Appendix Table 2.) Representation of recent immigrants in middle performing middle schools is about the same as it

is in elementary schools, although representation is notably lower in the high performing schools and higher in the low performing schools.

Special Education

Research on special education offers myriad and conflicting suggestions about why and how schools place students in special education. These decisions, in turn, may affect academic performance. One possibility is that more special education students might reflect more children with special needs in the school community. Alternatively, special education enrollments could reflect a greater propensity to classify children as needing special education – possibly in an effort to separate 'disruptive' children from regular classrooms. At the same time, parents and teachers in some schools may be quicker to identify mild learning disabilities and direct children into resource rooms where parents and teachers in other schools identify these disabilities only when they become more severe and the children end up in full time special education. Maybe the school has a special education program that serves a number of schools in the community school district. These are only some of the many forces that may drive differences in special education across schools.

Our analysis reveals a higher percentage of children in full-time special education in the lowest performing elementary and middle schools; the percentage declines with performance. Referrals follow a similar pattern. In elementary schools, representation of children in resource room does not follow the pattern, however (Table V A). More children are receiving resource room services in high performing schools (6.23%) than in middle (5.85%) or low performing schools (5.49%). In middle schools, the pattern differs again (Table V B). The highest

percentage of students receiving resource room services are in middle performing schools, while the lowest percentage are in high performing schools.

Attendance

Our analysis includes two attendance variables – average daily attendance (ADA) and percent of students in the same school for the whole year, which is a measure of student mobility. Low performing schools have the lowest ADA, and the lowest percentage of students remaining in the school for the entire school year and both are significantly lower than the values in high performing schools.

Characteristics of Teachers

Our analyses reveal a consistent pattern in the distribution of teacher characteristics across performance levels. On average, low performing schools have the fewest teachers who are licensed and permanently assigned to the school, who have been in the particular school for two or more years, who have five years or more of previous teaching experience, or who have a master's degree or higher. All of these are highest in the high performing schools; middle performing schools fall somewhere in between. Since these are the factors that trigger salary increases according to the terms of the teachers' contract, average teacher salaries follow suit. Interestingly, teacher attendance also follows a similar pattern – teachers in low performing elementary schools average 8.5 days absent each year; their colleagues in high performing elementary schools average 7.7 days absent. Again, this analysis cannot reveal whether these relate to the *cause* of low performance, or are a *result* of more difficult conditions in low performing schools.

Our data also include information on additional salary spending by the schools – prep period salary per teacher and 'other' salary per teacher. While interpreting this is particularly difficult, one noteworthy pattern is that low-performing schools spend more on prep period salary per teacher – essentially indicating that teachers in low performing schools are more likely to spend their prep periods working for extra salary. This may be because teachers in low performing schools are absent more frequently, because it is difficult to draw substitute teachers to low performing schools, or because teachers in low performing schools are more easily drawn into forgoing their prep periods for pay; we cannot distinguish the reasons from these patterns in the data.

Expenditures and Resources

Beginning with the pupil/teacher ratio, it should be noted that this is NOT the same as average class size and there may be a significant difference between these. Our analysis indicates that high performing schools have significantly higher pupil-teacher ratios – low performing schools in elementary reading tests have a pupil-teacher ratio of approximately 14.2 compared to almost 17.5 for high performing schools. The disparity is greater in middle schools (12.7 versus 17). Spending per pupil follows the opposite course. Low performing schools receiving significantly more funding than high performing schools overall. (See TOTAL spending per pupil – ALL in Table V A.) Spending in low performing elementary schools averages $9,136 while spending in the high performing schools is $1,220 per pupil *lower* at $7,916. The divergence is more profound in middle schools – spending in low performing middle schools is $10,305 while high performing middle schools receive only $7,622.

One explanation for this might be that low performing schools get more resources because of the higher representation of special education students. Unfortunately, the data suggest this is not the explanation. The same pattern (although not magnitude) is observed in an analysis of general education expenditures for general education students. Table V A (elementary schools) shows that the difference in TOTAL spending per pupil – GE ONLY is $7,421 versus $6,579 or $842. The implication is that the higher average salaries of teachers in high performing schools is less important in driving disparities in overall spending than the lower pupil-teacher ratio in low performing schools. Note, however, that low performing schools also spend more on almost everything - education paraprofessionals, textbooks, librarians and library books, and professional development.

Incorporating the expenditures on part-time special education for general education students reveals the same pattern, although with more moderate magnitudes. (See TOTAL spending per pupil – GE + PTSE in Table V A.) Interestingly, spending on part time special education students *per se* is highest in high achieving elementary schools and lowest in the low achieving elementary schools, although this pattern is not repeated at the middle school level. (See TOTAL spending per pupil – GE/GE + PTSE/PTSE in Tables V A and V B). In addition, for this group, expenditures on instructional support services increases with performance.

Finally, turning to the full-time special education students, the expenditure pattern reverses. (See TOTAL spending per pupil – SPECIAL ED in Table V A.) Total spending is highest in the high performing schools, lowest in the low performing schools and, interestingly, while the middle performing schools are, again, in the middle, spending is much closer to that in

the low performing schools. These patterns are repeated for subcategories of spending on teachers and paraprofessionals, instructional support, and leadership/supervision/support.

V. Conclusions

The findings detailed above are only the initial results of an extended study; much remains to be investigated before whatever causalities underlying these results can be established. But the initial findings are disheartening, both because they confirm years of previous research and because the findings are so consistent – poorly performing New York City schools overwhelmingly serve students of color who are poor, have consistently low attendance, and who are taught by teachers who have very limited experience, few if any credentials, and who make the lowest average salaries. Moreover, these poorly performing schools receive a higher per pupil expenditure than the aggregates for middle and high-performing schools.

The latest comprehensive effort to examine what structures these relationships, a series of articles examining the causes of *The Black-White Test Score Gap*, edited by Christopher Jencks and Meredith Phillips (Brookings Institution Press, Washington, D.C. 1998), suggests that the quality of students' family preparation for schooling, the quality of students' pre-school experience, and the quality of students' teachers explain much of the underlying causes of disparate performance. Large-scale research studies of the Tennessee Star Program suggest that reducing class size in the very early grades may well contribute to lowering the racial gap in test score performance. Other researchers across the past three decades have advanced other arguments about the causal mechanisms explaining the relationships this initial study documents.

The next steps in this study will explore some of the underlying mechanisms structuring the relationships we report above. We will also investigate the extent of variation in these

patterns, at district or school levels within New York City, that might begin to suggest how these relationships can be transformed. Clearly, efforts to break the correlations between race, poverty, poor teaching quality and student achievement are critical to the improvement of the New York City school systems and other urban systems across the country. Hopefully the continuation of this research can make a modest contribution to helping those efforts become successful.

TABLE II A
DESCRIPTIVE STATISTICS
ALL VARAIBLES, ALL SCHOOLS
1997-98

VARIABLE LABEL	VARIABLE NAME	N	Mean	Minimum	Maximum	StdDev
TESTING						
R3AVGNCE	Read 3rd Grd: mean N.C.E.	669	50.72	25.20	79.40	8.76
R4AVGNCE	Read 4th Grd: mean N.C.E.	665	52.65	33.50	81.40	8.93
R5AVGNCE	Read 5th Grd: mean N.C.E.	663	50.01	4.00	86.00	9.68
R6AVGNCE	Read 6th Grd: mean N.C.E.	463	46.99	18.20	89.30	11.10
R7AVGNCE	Read 7th Grd: mean N.C.E.	279	48.90	22.40	84.40	9.39
R8AVGNCE	Read 8th Grd: mean N.C.E.	267	50.98	24.00	83.20	9.09
RTAVGNCE	Read All Grd: mean N.C.E. (weight NTST)	905	50.35	25.20	79.57	9.03
R3PTAKE	% Student Taken Test: R3	669	88.03	26.03	100.00	10.46
R4PTAKE	% Student Taken Test: R4	665	91.33	60.81	100.00	7.14
R5PTAKE	% Student Taken Test: R5	663	92.53	52.38	100.00	6.64
R6PTAKE	% Student Taken Test: R6	464	91.93	0.00	100.00	9.36
R7PTAKE	% Student Taken Test: R7	280	90.43	0.00	100.00	9.59
R8PTAKE	% Student Taken Test: R8	267	90.01	1.39	100.00	9.99
RTPTAKE	% Student Taken Test: RT	905	90.52	1.50	100.00	8.07
R3PPASS	Read 3rd Grd:% at/above grade(50th%tile)	669	51.52	0.00	94.40	17.84
R4PPASS	Read 4th Grd:% at/above grade(50th%tile)	665	54.53	5.60	98.10	19.04
R5PPASS	Read 5th Grd:% at/above grade(50th%tile)	663	48.10	0.00	100.00	20.56
R6PPASS	Read 6th Grd:% at/above grade(50th%tile)	464	43.02	0.00	100.00	20.07
R7PPASS	Read 7th Grd:% at/above grade(50th%tile)	280	46.09	0.00	100.00	20.94
R8PPASS	Read 8th Grd:% at/above grade(50th%tile)	267	50.13	0.00	100.00	19.60
RTPPASS	Read All Grd:% at/above grade(50th%tile)	905	49.74	0.00	98.70	18.39
M3AVGNCE	Math 3rd Grd: mean N.C.E.	669	56.78	26.20	87.90	11.97
M4AVGNCE	Math 4th Grd: mean N.C.E.	665	59.20	28.00	92.40	12.42
M5AVGNCE	Math 5th Grd: mean N.C.E.	667	56.13	1.00	87.50	12.22
M6AVGNCE	Math 6th Grd: mean N.C.E.	465	56.23	31.40	90.30	11.43
M7AVGNCE	Math 7th Grd: mean N.C.E.	281	52.52	16.30	90.30	11.97
M8AVGNCE	Math 8th Grd: mean N.C.E.	267	53.52	31.20	88.90	10.77
MTAVGNCE	Math All Grd: mean N.C.E. (weight NTST)	905	56.45	28.67	87.30	11.51
M3PTAKE	% Student Taken Test: M3	669	92.32	55.24	100.00	6.47
M4PTAKE	% Student Taken Test: M4	665	94.09	62.89	100.00	5.35
M5PTAKE	% Student Taken Test: M5	667	94.58	52.38	100.00	5.48
M6PTAKE	% Student Taken Test: M6	466	94.44	0.00	100.00	6.97
M7PTAKE	% Student Taken Test: M7	281	93.66	42.55	100.00	6.25
M8PTAKE	% Student Taken Test: M8	267	93.04	46.15	100.00	6.46
MTPTAKE	% Student Taken Test: MT	905	93.61	46.39	100.00	5.34
M3PPASS	Math 3rd Grd:% at/above grade(50th%tile)	669	62.06	0.00	100.00	20.47
M4PPASS	Math 4th Grd:% at/above grade(50th%tile)	665	63.99	10.00	100.00	19.93
M5PPASS	Math 5th Grd:% at/above grade(50th%tile)	667	62.29	0.00	100.00	21.06
M6PPASS	Math 6th Grd:% at/above grade(50th%tile)	466	62.63	0.00	100.00	20.40
M7PPASS	Math 7th Grd:% at/above grade(50th%tile)	281	54.98	0.00	100.00	21.58
M8PPASS	Math 8th Grd:% at/above grade(50th%tile)	267	57.90	6.30	100.00	20.32
MTPPASS	Math All Grd:% at/above grade(50th%tile)	905	61.53	12.70	100.00	19.36
SPECIAL EDUCATION						
PSEREG	Pct stu. special education	904	6.33	0.00	37.70	6.29
PRR	Pct stu. resource room	883	6.27	0.10	21.10	2.95
PSEREF	pct initial referrals to spec ed	882	4.94	0.40	20.20	2.58
SOCIOECONOMIC VARIABLES						
PFULLYR	stu. pct in this school entire year	888	92.18	49.60	99.80	4.16
PATTEN	stu.pct average daily attendance 9798	905	90.50	77.80	98.50	2.98
PWHITE	stu. pct white	904	16.62	0.00	93.80	23.45
PBLACK	stu. pct black	904	35.94	0.00	97.60	30.06
PHISP	stu. pct hispanic	904	37.37	1.30	99.40	26.23
PASIAN	stu. pct asian	904	10.06	0.00	94.30	14.06
PFEMALE	stu. pct female	904	48.83	23.50	100.00	3.63
PIMMIG	Pct stu. Arrival to US<3 yrs	904	7.70	0.00	91.60	6.63
PFL	Pct stu eligible for free lunch	905	75.08	6.30	100.00	23.56
PLEP	Pct stu. LEP	864	15.93	0.30	115.30	13.10

TEACHERS

PTCHA	pct tch fully lic/perm assigned	847	85.29	0.00	100.00	12.73
PTCHF	pct tch more than 2 yrs in this school	847	67.92	0.00	100.00	16.52
PTCHC	pct tch more than 5 yrs teaching	847	61.82	0.00	100.00	13.10
PTCHD	pct tch masters or higher	847	78.67	41.70	100.00	10.39
PTCHE	pct tch avg num days absent	799	7.91	3.00	14.50	1.45
TFTSL	Full-timeTch PER TCH Salary	905	43256.71	28198.59	80274.41	4172.72
TPRPSL	PrepPeriodTch PER TCH Salary	905	183.81	-0.47	1653.33	315.15
TOTHSL	Other Tch PER TCH Salary	905	1656.54	226.24	13731.82	1148.41

TABLE 11 A (CONTINUED)

VARIABLE LABEL	VARIABLE NAME	N	Mean	Minimum	Maximum	StdDev
RESOURCES						
PUP_TCH	Pupil Teacher Ratio (ALL_STD TCHR_TOT)	905	15.69	6.63	31.47	2.58
TOTAL SPENDING PER PUPIL --ALL						
A_TOTAL	TOTAL (SUM of I, II, III - wo/passths)	905	8358.73	4761.49	22414.42	1878.06
A_I_DIR	I DIRECT SERVICES (SUM A,B,C,D,E,& F)	905	7490.01	3960.54	21509.95	1829.63
A_IA	I A CLASSROOM INSTRUCTION	905	4506.49	2876.85	11358.11	885.48
A1100100	I A Classroom Instr, Teachers	905	3854.78	2397.70	8990.60	724.33
A1100125	I A Classroom Instr, Ed Paras	905	254.39	-0.06	1105.06	169.30
A1100175	I A Classroom Instr, Text Books	905	76.72	2.75	602.64	43.00
A1100200	I A Classroom Instr, Librians/LibBooks	905	9.45	0.00	228.41	16.78
A1100250	I A Classroom Instr, Prof Development	905	121.11	27.44	1220.37	87.94
A_IA_OTH	I A Classroom Instr, OTHER	905	190.04	25.11	1881.54	132.91
A_IB	I B INSTRUCTIONAL SUPPORT SERVICES	905	824.45	59.41	4104.49	444.99
A_IC	I C LEADERSHIP/SUPERVISION/SUPPORT	905	633.44	183.98	3323.90	215.94
A_ID	I D ANCILLARY SUPPORT SERVICES	905	860.36	95.13	2972.62	344.75
A_I_OTH	I Direct Services, OTHER (E&F)	905	665.27	35.42	5705.54	484.07
A_II_DST	II DISTRICT/SUPERINT COSTS (SUM A & B)	905	176.89	53.68	1082.05	80.34
TOTAL SPENDING PER PUPIL - GE ONLY						
G_TOTAL	TOTAL (SUM of I, II, III - wo/passths)	905	7017.42	4146.08	22266.33	1381.18
G_I_DIR	I DIRECT SERVICES (SUM A,B,C,D,E,& F)	905	6210.01	3357.08	21365.03	1353.47
G_IA	I A CLASSROOM INSTRUCTION	905	4065.57	2436.97	10489.45	739.96
G1100100	I A Classroom Instr, Teachers	905	3523.14	2025.14	8264.61	623.24
G1100125	I A Classroom Instr, Ed Paras	905	163.75	-0.06	717.70	128.49
G1100175	I A Classroom Instr, Text Books	905	74.38	2.81	582.19	42.94
G1100200	I A Classroom Instr, Librians/LibBooks	905	9.46	0.00	228.27	17.09
G1100250	I A Classroom Instr, Prof Development	905	107.98	26.35	1216.35	84.88
G_IA_OTH	I A Classroom Instr, OTHER	905	186.86	23.73	1880.94	133.46
G_IB	I B INSTRUCTIONAL SUPPORT SERVICES	905	264.52	43.75	1483.69	144.87
G_IC	I C LEADERSHIP/SUPERVISION/SUPPORT	905	598.26	172.01	3323.89	208.16
G_ID	I D ANCILLARY SUPPORT SERVICES	905	615.50	95.04	1699.48	174.44
G_I_OTH	I Direct Services, OTHER (E&F)	905	666.15	35.52	5706.47	485.56
G_II_DST	II DISTRICT/SUPERINT COSTS (SUM A & B)	905	164.54	48.69	1051.38	80.09
TOTAL SPENDING PER PUPIL - GE + PTSE						
GP_TOT	TOTAL (SUM of I, II, III - wo/passths)	905	7505.73	4473.19	22316.03	1500.96
GP_IDIR	I DIRECT SERVICES (SUM A,B,C,D,E,& F)	905	6663.40	3651.62	21411.56	1463.95
GP_IA	I A CLASSROOM INSTRUCTION	905	4213.41	2545.45	10490.25	780.74
GP_1100	I A Classroom Instr, Teachers	905	3664.48	2126.10	8264.61	668.98
GP_1125	I A Classroom Instr, Ed Paras	905	164.15	-0.06	717.91	128.54
GP_1175	I A Classroom Instr, Text Books	905	75.47	2.81	586.03	42.96
GP_1200	I A Classroom Instr, Librians/LibBooks	905	9.60	0.00	228.41	17.14
GP_1250	I A Classroom Instr, Professional Devl	905	110.87	26.67	1216.35	85.39
GP1A_OTH	I A Classroom Instr, OTHER	905	188.83	23.79	1881.54	133.83
GP_IB	I B INSTRUCTIONAL SUPPORT SERVICES	905	562.87	59.41	4020.96	261.21
GP_IC	I C LEADERSHIP/SUPERVISION/SUPPORT	905	604.09	176.76	3323.90	209.89
GP_ID	I D ANCILLARY SUPPORT SERVICES	905	616.84	95.11	1699.67	174.43
GP1_OTH	I Direct Services, OTHER (E&F)	905	666.17	35.52	5706.51	485.56
GP IIDST	II DISTRICT/SUPERINT COSTS (SUM A & B)	905	173.26	53.68	1088.06	82.14
TOTAL SPENDING PER PUPIL - GE/GE + PTSE/PTSE						
H_TOTAL	TOTAL (SUM of I, II, III - wo/passths)	899	14634.70	6668.17	44437.64	3636.64
H_I_DIR	I DIRECT SERVICES (SUM A,B,C,D,E,& F)	899	13294.24	5878.17	43036.02	3595.35
H_IA	I A CLASSROOM INSTRUCTION	899	6266.81	3068.11	16346.63	1571.83

H1100100	I A Classroom Instr, Teachers	899	5628.83	2431.22	14575.00	1498.93
H1100125	I A Classroom Instr, Ed Paras	899	168.96	-0.06	889.97	133.43
H1100175	I A Classroom Instr, Text Books	899	90.92	2.82	612.04	46.69
H1100200	I A Classroom Instr, Librians/LibBooks	899	11.31	0.00	229.84	18.53
H1100250	I A Classroom Instr, Prof Development	899	151.27	51.67	922.96	93.73
H_1A_OTH	I A Classroom Instr, OTHER	899	215.52	24.95	1887.49	146.56
H_IB	I B INSTRUCTIONAL SUPPORT SERVICES	899	5036.63	306.29	33628.01	2754.41
H_IC	I C LEADERSHIP/SUPERVISION/SUPPORT	899	689.06	232.47	7688.57	368.00
H_ID	I D ANCILLARY SUPPORT SERVICES	899	636.21	115.68	1720.12	173.99
H_I_OTH	I Direct Services, OTHER (E&F)	899	665.54	35.82	5706.77	485.98
H_II_DST	II DISTRICT/SUPERINT COSTS (SUM A & B)	899	294.13	77.30	1999.70	193.77
TOTAL SPENDING PER PUPIL - SPECIAL EDUCATION						
F_TOTAL	TOTAL (SUM of I, II, III - wo/passths)	729	21811.56	0.00	123194.57	8069.79
F_I_DIR	I DIRECT SERVICES (SUM A,B,C,D,E,& F)	729	20556.44	0.00	122059.70	7985.90
F_IA	I A CLASSROOM INSTRUCTION	729	9414.37	0.00	65642.46	4676.53
F1100100	I A Classroom Instr, Teachers	729	7126.93	0.00	64784.27	3884.56
F1100125	I A Classroom Instr, Ed Paras	729	1691.95	0.00	15704.16	1386.83
F1100175	I A Classroom Instr, Text Books	729	93.46	0.00	1281.56	70.06
F1100200	I A Classroom Instr, Librians/LibBooks	729	6.85	0.00	135.08	13.75
F1100250	I A Classroom Instr, Prof Development	729	285.53	0.00	5971.63	309.08
F_IA_OTH	I A Classroom Instr, OTHER	729	209.65	0.00	2173.14	149.27
F_IB	I B INSTRUCTIONAL SUPPORT SERVICES	729	4819.63	0.00	17371.38	2201.15
F_IC	I C LEADERSHIP/SUPERVISION/SUPPORT	729	1005.43	0.00	7144.01	648.99
F_ID	I D ANCILLARY SUPPORT SERVICES	729	4688.42	0.00	41149.01	2922.31
F_I_OTH	I Direct Services, OTHER (E&F)	729	628.59	0.00	5701.70	417.25
F_II_DST	II DISTRICT/SUPERINT COSTS (SUM A & B)	729	235.19	0.00	1331.08	168.96

TABLE II A (CONTINUED)

VARIABLE LABEL	VARIABLE NAME	N	Mean	Minimum	Maximum	StdDev
STUDENT COUNTS						
ALL_STD	All Students (GE + FTSE)	905	870.46	66.00	2671.00	365.89
GE_STD	General Education Students	905	819.38	53.00	2671.00	358.20
PTSE_STD	Part-time Special Education Students	905	51.21	0.00	180.00	29.49
FTSE_STD	Full-time Special Education Students	905	51.08	0.00	234.00	47.63
TOTREG	nbrReg	904	803.28	42.00	2672.00	403.06
NGEREG	stu. num gen ed	904	755.24	42.00	2672.00	391.69
NRR	stu. num resource rm	883	47.58	1.00	170.00	27.72
NSEREG	stu. num spec ed	904	48.04	0.00	234.00	47.77

TABLE II B
VARIABLE NAMES, DESCRIPTIONS, & SOURCES
1997-98

Variable Name	Description	Source
R#AVGNCE	Reading "#" represents grade 3rd-8th and "T"=all grades Mean N.C.E. score	CTB98
M#AVGNCE	Mathematics "#" represents grade 3rd-8th and "T"=all grades Mean N.C.E. score	CAT98
R#PPASS	Reading "#" represents grade 3rd-8th and "T"=all grades Percent of students taking the exam who scored at or above the 50th percentile (number at or above 50th percentile divided by number of students taking the test)	CTB98
M#PPASS	Mathematics "#" represents grade 3rd-8th and "T"=all grades Percent of students taking the exam who scored at or above the 50th percentile (number at or above 50th percentile divided by number of students taking the test)	CAT98
R#PTAKE	Reading "#" represents grade 3rd-8th and "T"=all grades Percent of students for whom a test form was prepared that took the exam. Students not taking the test may have been absent, excused or exempted.	CTB98
M#PTAKE	Mathematics "#" represents grade 3rd-8th and "T"=all grades Percent of students for whom a test form was prepared that took the exam. Students not taking the test may have been absent, excused or exempted.	CAT98
PSEREG	Percent of total registered (TOTREG) students who are in special education	ASR98
PRR	Percent of all students (TOTREG) who are receiving resource room/consultant teacher/ related services	ASR98
PFULLYR	Percent of all students (TOTREG) in this school from October through June	ASR98
PATTEN	Percent of days student attended	ASR98
PWHITE	Percent of all students (TOTREG) who are white	ASR98
PBLACK	Percent of all students (TOTREG) who are black	ASR98
PHISP	Percent of all students (TOTREG) who are hispanic	ASR98
PASIAN	Percent of all students (TOTREG) who are asian or other	ASR98
PFEMALE	Percent of all students (TOTREG) who are female	ASR98
PIMMIG	Percent of all students (TOTREG) who have arrived in the U.S. in the last three years as of October 31st.	ASR98
PFL	Percent of students eligible for free or reduced price lunch NOTE: Community school districts 1, 5, 9, and 17 are universal free lunch districts, all schools in the csd are automatically eligible for Title I status. Schools are not required to collect lunch forms. These data, in most cases, have not been updated from previous years counts.	ASR98
PLEP	Percent of all students (TOTREG) who are limited English proficient, scoring below the 41st percentile on the Language Assessment Battery (LAB) test	ASR98
PSEREF	Percent of students initially referred for assessment of special educational need.referred to special education during the school year	ASR98
PTCHA	Percent of teachers who are fully licensed and permanently assigned to this	ASR98

Variable Name	Description	Source
	school (9798 Human Resource division provided school level data to DAA)	

TABLE II B (CONTINUED)

Variable Name	Description	Source
PTCHF	Percent of teachers who have been in this school for more than 2 years (9798 Human Resource division provided school level data to DAA)	ASR98
PTCHC	Percent of teachers who have more than 5 years of teaching experience (anywhere) (9798 Human Resource division provided school level data to DAA)	ASR98
PTCHD	Percent of teachers with masters degree or higher (9798 Human Resource division provided school level data to DAA)	ASR98
PTCHE	Teachers' average number of days absent (9798 Human Resource division provided school level data to DAA)	ASR98
TFTSL	Average Teacher Salary Salary expenditures per full-time equivalent teacher position without distinction in terms of student types	SBER98 special request
TPRPSL	Average Prep-period salary per teacher Salary expenditures that remunerate teachers for the use of preparation periods divided by the number of full-time equivalent teacher positions.	SBER98 special request
TOTHSL	Average Other salary per teacher Expenditures for per diem or per session substitute teachers divided by the number of full-time equivalent teacher positions	SBER98 special request
PUP_TCH	Pupil:Teacher All students divided by the number of full-time equivalent teacher positions	SBER98
*_TOTAL	TOTAL Spending per pupil	SBER98
*_I_DIR	I. Direct Services to Schools "Services provided directly to public school students and staff, and which take place primarily in the school building during the school day, during the school year." (SBER)	SBER98
*_IA	A. Classroom Instruction "School-based direct instructional services provided primarily in classrooms." (SBER) Sum of the following; teachers, paraprofessionals, other classroom staff, textbooks, librarians/library books, instructional supplies and equipment, professional development, curriculum development, contracted instructional services, and summer and evening school.	SBER98
*1100100	i. Teachers "All teachers who provide direct instruction on a full-time, part-time or per diem basis or during their preparation periods. General education, special education, and bilingual teachers are included. Also included are library teachers in elementary and middle schools whose salaries appear on teacher lines,..." (SBER)	SBER98
*1100125	ii. Ed Paraprofessionals "Full-time, part-time, per-diem and substitute educational paraprofessionals who provide direct services in the classroom. Paraprofessionals who provide mandated services per a child's Individualized Education Plan (IEP) are included in Related Services." (SBER)	SBER98
*1100175	iii. Textbooks "Funds spent for textbooks for school-day, school-year classroom instructional use including New York State Textbook Law funds as well as other city and state operating funds. Textbook funds spent in after-school	SBER98

Variable Name	Description	Source
	budgets are included in After-School Programs; textbook funds for summer school are included in Summer School, etc. Thus, funds reported in this category do not represent the entire budget for textbooks." (SBER)	

TABLE II B (CONTINUED)

Variable Name	Description	Source
*1100200	Librarians/Library Books "Funds spent for library books for school libraries for school-day, school-year use including all New York State Textbook Law funds and other city and state operating funds." (SBER)	SBER98
*1100250	Professional Development "Funds spent for professional development provided at the school level, primarily teacher trainers and trainees. Included in this category are funds spent for professional educational conferences." (SBER)	SBER98
*_IA_OTH	Other Sum of the following categories under classroom instruction; other classroom staff, instructional supplies and equipment, curriculum development, contracted instructional services, and summer and evening school.	SBER98
*_IB	Instructional Support Services "Included in this category are direct services to students that supplement the basic category below are staff who directly supervise the services and programs, and other than personal services (supplies, materials etc.) that are used by the service providers. Both BOE providers and contracted staff are included." (SBER) Sum of the following categories; counseling services, attendance/outreach services, related services, drug prevention, referral, evaluation and placement, after school and student activities, and parent involvement activities.	SBER98
*_IC	C. Leadership/Supervision/Support Sum of the following categories; principals, assistant principals, supervisors, secretaries, school aides and other support staff, and supplies materials, equipment and telephones.	SBER98
*_ID	Ancillary Support Services Sum of the following categories; food services, transportation, school safety, and computer system support.	SBER98
*_I_OTH	Other Includes building services expenditures on custodial services, building maintenance, leases, and energy.	SBER98
*_II_DST	District Costs "Funds supporting the operation of the 32 Community School District offices and boards,..." (SBER)	SBER98
* = A	All expenditures (by function) divided by all students. All students are the sum of general education students plus full-time special education students	
* = G	Expenditures made on the behalf of general education students divided by general education students.	
* = GP	Expenditures made on the behalf of general education students plus expenditures made on the behalf of part-time special education students divided by general education students.	
* = H	The sum of the following: a) expenditures made on the behalf of general education student divided by general education students, and b)	

Variable Name	Description	Source
	expenditures made on the behalf of part-time special education students divided by part-time special education students	
* = F	Expenditures made on the behalf of full-time special education students divided by full-time special education students.	

TABLE II B (CONTINUED)

Variable Name	Description	Source
ALL_STD	All Students, sum of general education and full-time special education students	SBER98
GE_STD	General Education Students	SBER98
PTSE_STD	Part-time Special Education, general education students who have been identified as in need of resource room services	SBER98
FTSE_STD	Full-time Special Education	SBER98
TOTREG	student register as of October 31, 1997 sum of general education register and special education register	ASR98
NGEREG	number of students on register who are in general education	ASR98
NRR	number of students in need of resource room services, these students may be general education or special education students	ASR98
NSEREG	number of students on register who are in special education	ASR98

ASR98
Annual School Reports 1997-98
Produced by the New York City Board of Education's Division of Assessment and Accountability

CTB98, CAT98
CTB 1997-98, CAT 1997-98 School-level results by grade
Produced by the New York City Board of Education's Division of Assessment and Accountability

SBER98
School Based Expenditure Reports, Fiscal Year 1997-98
Produced by the New York City Board of Education's Division of Budget Operations and Review
All information on teacher and related salaries was provided by the BOE's Division of Budget Operations and Review per a special request.

TABLE III A
CONSISTENCY ACROSS TESTS AND GRADES

3rd Grade Reading and Math
r = .899

	Reading		
Math	Low	Middle	High
Low		43	
Middle	37		20
High		35	

3rd and 5th Grade Reading
r = .847

	3rd Grade		
5th Grade	Low	Middle	High
Low		38	
Middle	44		21
High		31	

TABLE III B
NUMBER OF TABLES

Grades 3-8	6	
Elementary and middle Schools	2	
	8	
Reading and math	x 2 =16	
Pupil weighted and not weighted	x 2 =32	Total

TABLE V A
1997-98 All Grades Reading
Elementary Schools
by Level of Performance

	Low <-1 SD N.C.E	Middle Between ±1 SD N.C.E.	High >+1 SD N.C.E.
TESTING			
Mean N.C.E. score	39.13	50.02	64.83
Percent of tested students			
tested scoring at or above 50th percentile*	26.33	49.56	78.31
taking the test*	88.62	90.14	93.99
SPECIAL EDUCATION			
Percent of students			
in special education*	9.50	5.50	4.26
receiving resource room services*	5.49	5.85	6.26
initially referred to special education*	6.56	5.63	4.77
ATTENDANCE			
Pct of students in this school for entire year*	88.83	91.69	95.25
Average daily attendance*	88.35	90.97	93.57
SOCIOECONOMIC VARIABLES			
Percent of students who are			
white*	0.89	11.51	50.76
black*	47.48	38.61	13.37
Hispanic*	49.59	39.92	17.22
Asian*	2.04	9.95	18.66
female*	48.12	49.06	48.48
recent immigrants (within the past 3 years)*	5.00	8.30	8.35
eligible for free lunch*	93.6	81.84	39.61
with limited English proficiency*	20.7	16.85	10.99
TEACHERS			
Percent of teachers			
licensed and permanently assigned to the school*	74.62	87.56	95.82
who have been in this school for 2+ years*	58.13	69.95	73.71
with 5+ years teaching experience*	55.17	61.9	66.24
with M.A. or higher*	70.43	79.03	86.04
Average number of days absent*	8.52	7.80	7.29
Average Teacher Salary	39,779.29	43,029.24	46,302.90
Average Prep-period salary per teacher	112.78	53.25	42.29
Average Other salary per teacher	1,359.40	1,587.94	2,360.62

TABLE V A (continued)
1997-98 All Grades Reading
Elementary Schools
by Level of Performance

RESOURCES			
Pupil:Teacher	14.22	16.05	17.47
TOTAL Spending per pupil - ALL (all dollars per student [all])	9,135.58	8,124.06	7,916.39
I. Direct Services to Schools	8,234.99	7,271.72	7,073.09
A. Classroom Instruction	4,811.01	4,402.20	4,160.96
i. Teachers	3,913.63	3,705.71	3,705.00
ii. Ed Paraprofessionals	377.04	304.51	180.05
iii. Textbooks	98.08	73.83	65.22
iv. Librarians/Library Books	15.52	8.27	5.45
v. Professional Development	141.92	119.72	96.78
vi. Other	264.83	190.15	108.46
B. Instructional Support Services	961.11	777.09	813.05
C. Leadership/Supervision/Support	697.37	603.93	565.19
D. Ancillary Support Services	1,065.61	895.8	851.80
E. Other	699.88	592.70	682.09
II. District Costs	192.49	165.24	161.39
TOTAL Spending per pupil - GE ONLY (general education dollars per general education student)	7,421.28	6,846.81	6,578.73
I. Direct Services to Schools	6,594.42	6,047.97	5,793.27
A. Classroom Instruction	4,271.65	4,002.44	3,745.53
i. Teachers	3,533.94	3,407.73	3,390.16
ii. Ed Paraprofessionals	243.06	218.50	94.11
iii. Textbooks	95.33	71.50	63.47
iv. Librarians/Library Books	15.81	8.28	5.51
v. Professional Development	123.22	108.86	86.53
vi. Other	260.29	187.57	105.75
B. Instructional Support Services	321.25	245.50	206.44
C. Leadership/Supervision/Support	658.18	574.12	532.42
D. Ancillary Support Services	642.81	632.31	628.50
E. Other	700.53	593.59	680.38
II. District Costs	182.11	155.79	145.44

TABLE V A (continued)
1997-98 All Grades Reading
Elementary Schools
by Level of Performance

TOTAL Spending per pupil - GE + PTSE (general education and part-time special education dollars per general education student)	7,877.19	7,303.68	7,142.64
I. Direct Services to Schools	7,017.05	6,473.69	6,318.83
A. Classroom Instruction	4,411.51	4,134.04	3,899.53
i. Teachers	3,666.69	3,533.46	3,538.79
ii. Ed Paraprofessionals	243.26	218.93	94.60
iii. Textbooks	96.53	72.50	64.26
iv. Librarians/Library Books	16.02	8.40	5.57
v. Professional Development	126.50	111.53	89.19
vi. Other	262.51	189.21	107.12
B. Instructional Support Services	598.37	534.32	569.28
C. Leadership/Supervision/Support	662.59	578.17	539.79
D. Ancillary Support Services	644.03	633.56	629.83
E. Other	700.55	593.61	680.40
II. District Costs	189.16	162.53	157.14
TOTAL Spending per pupil - GE/GE + PTSE/PTSE (general education per general education student + additional amount, part-time special education dollars per part-time special education student)	14,859.02	14,529.63	15,380.29
I. Direct Services to Schools	13,484.82	13,208.87	14,005.61
A. Classroom Instruction	6,444.33	6,127.68	6,127.53
i. Teachers	5,611.98	5,436.76	5,686.68
ii. Ed Paraprofessionals	242.25	224.55	103.60
iii. Textbooks	111.35	87.76	76.51
iv. Librarians/Library Books	18.29	9.96	6.47
v. Professional Development	166.53	154.68	127.26
vi. Other	293.93	213.97	127.01
B. Instructional Support Services	4,962.53	5,193.30	5,907.28
C. Leadership/Supervision/Support	714.51	640.25	640.97
D. Ancillary Support Services	667.08	653.33	649.15
E. Other	696.37	594.31	680.68
II. District Costs	301.89	267.04	323.76

TABLE V A (continued)
1997-98 All Grades Reading
Elementary Schools
by Level of Performance

TOTAL Spending per pupil - SPECIAL ED (full-time special education dollars per full-time special education student)	21,277.75	22,528.89	26,095.29
I. Direct Services to Schools	19,991.90	21,303.65	24,778.37
A. Classroom Instruction	8,794.28	9,364.42	10,826.50
i. Teachers	6,431.00	6,932.36	8,240.75
ii. Ed Paraprofessionals	1,613.30	1,860.31	2,009.33
iii. Textbooks	122.50	91.75	86.33
iv. Librarians/Library Books	11.96	5.66	2.17
v. Professional Development	316.97	265.46	350.16
vi. Other	298.53	208.87	137.76
B. Instructional Support Services	4,528.47	5,022.67	6,315.53
C. Leadership/Supervision/Support	919.19	956.57	1,069.48
D. Ancillary Support Services	5,044.30	5,405.75	5,925.28
E. Other	705.68	554.24	641.57
II. District Costs	234.66	212.90	278.15
STUDENT COUNTS			
Means			
All Students (SBER)	770.47	880.93	723.66
General Education Students (SBER)	705.51	837.68	693.02
Part-time Special Education (SBER)	39.08	47.26	43.13
Full-time Special Education (SBER)	64.96	43.25	30.63
Sums			
All Students (SBER)	81,670	391,135	90,457
General Education Students (SBER)	74,784	371,931	86,628
Part-time Special Education (SBER)	4,142	20,983	5,391
Full-time Special Education (SBER)	6,886	19,204	3,829
NUMBER OF SCHOOLS	106	444	125

* The source for these variables is the Annual School Reports which contain student enrollment counts that differ slightly from the School Based Expenditure Reports (SBER).

TABLE V B
1997-98 All Grades Reading
Middle Schools
by Level of Performance

	Low <-1 SD N.C.E	Middle Between ±1 SD N.C.E.	High >+1 SD N.C.E.
TESTING			
Mean N.C.E. score	36.16	47.78	64.64
Percent of tested students			
tested scoring at or above 50th percentile*	21.54	44.22	78.14
taking the test*	88.62	89.58	95.24
SPECIAL EDUCATION			
Percent of students			
in special education*	12.29	7.23	3.89
receiving resource room services*	6.93	7.99	5.88
initially referred to special education*	3.57	2.73	2.06
ATTENDANCE			
Pct of students in this school for entire year*	90.00	92.86	96.86
Average daily attendance*	84.34	89.02	93.57
SOCIOECONOMIC VARIABLES			
Percent of students who are			
white*	2.76	13.34	38.34
black*	50.78	37.69	23.10
Hispanic*	44.42	39.71	20.80
Asian*	2.05	9.25	17.76
female*	46.90	48.76	51.95
recent immigrants (within the past 3 years)*	6.65	8.23	4.42
eligible for free lunch*	87.78	76.41	38.02
with limited English proficiency*	17.85	15.5	5.63
TEACHERS			
Percent of teachers			
licensed and permanently assigned to the school*	71.96	79.60	89.87
who have been in this school for 2+ years*	59.25	66.27	67.24
with 5+ years teaching experience*	59.93	62.04	68.00
with M.A. or higher*	72.28	78.02	83.51
Average number of days absent*	8.69	8.18	7.66
Average Teacher Salary	42,345.16	43,431.55	46,155.73
Average Prep-period salary per teacher	748.77	566.31	211.26
Average Other salary per teacher	1,178.32	1,399.04	2,658.47

TABLE V B (continued)
1997-98 All Grades Reading
Middle Schools
by Level of Performance

RESOURCES			
Pupil:Teacher	12.68	14.69	16.96
TOTAL Spending per pupil - ALL (all dollars per student [all])	10,304.90	8,531.62	7,622.26
I. Direct Services to Schools	9,371.87	7,635.88	6,743.55
A. Classroom Instruction	5,495.48	4,684.37	4,244.49
i. Teachers	4,694.19	4,150.83	3,845.77
ii. Ed Paraprofessionals	195.95	141.05	80.98
iii. Textbooks	111.46	73.78	64.91
iv. Librarians/Library Books	15.01	10.78	8.06
v. Professional Development	152.73	125.43	107.92
vi. Other	326.14	182.49	136.85
B. Instructional Support Services	1,051.32	847.53	693.45
C. Leadership/Supervision/Support	846.99	676.97	627.94
D. Ancillary Support Services	799.13	686.29	665.94
E. Other	1,178.95	740.73	511.74
II. District Costs	222.69	196.15	196.73
TOTAL Spending per pupil - GE ONLY (general education dollars per general education student)	8,826.37	7,232.04	6,560.26
I. Direct Services to Schools	7,972.33	6,411.63	5,733.11
A. Classroom Instruction	4,942.39	4,191.62	3,848.38
i. Teachers	4,275.99	3,762.66	3,524.02
ii. Ed Paraprofessionals	97.72	58.26	20.55
iii. Textbooks	107.86	71.21	63.87
iv. Librarians/Library Books	14.69	10.63	8.35
v. Professional Development	124.06	110.5	97.73
vi. Other	322.06	178.37	133.85
B. Instructional Support Services	434.38	292.87	225.93
C. Leadership/Supervision/Support	781.57	631.81	607.31
D. Ancillary Support Services	634.27	551.64	538.32
E. Other	1,179.71	743.69	513.17
II. District Costs	208.82	176.82	187.84

TABLE V B (continued)
1997-98 All Grades Reading
Middle Schools
by Level of Performance

TOTAL Spending per pupil - GE + PTSE (general education and part-time special education dollars per general education student)	9,281.81	7,786.33	7,009.36
I. Direct Services to Schools	8,392.34	6,921.75	6,149.30
A. Classroom Instruction	5,089.13	4,386.88	3,989.85
i. Teachers	4,415.21	3,949.35	3,659.36
ii. Ed Paraprofessionals	97.80	58.69	21.05
iii. Textbooks	109.34	72.69	64.54
iv. Librarians/Library Books	14.88	10.84	8.41
v. Professional Development	126.92	113.92	100.80
vi. Other	324.98	181.38	135.68
B. Instructional Support Services	696.07	596.41	493.78
C. Leadership/Supervision/Support	791.66	641.41	612.79
D. Ancillary Support Services	635.74	553.33	539.69
E. Other	1,179.73	743.71	513.19
II. District Costs	218.07	190.08	195.07
TOTAL Spending per pupil - GE/GE + PTSE/PTSE (general education per general education student + additional amount, part-time special education dollars per part-time special education student)	15,419.02	13,984.20	14,714.88
I. Direct Services to Schools	14,078.81	12,631.70	13,406.19
A. Classroom Instruction	6,992.71	6,541.43	5,927.72
i. Teachers	6,219.63	6,014.87	5,497.34
ii. Ed Paraprofessionals	98.90	62.72	25.37
iii. Textbooks	127.23	89.26	88.84
iv. Librarians/Library Books	16.97	13.31	9.41
v. Professional Development	159.25	150.53	142.08
vi. Other	370.73	210.74	164.68
B. Instructional Support Services	4,389.78	4,007.72	5,568.03
C. Leadership/Supervision/Support	861.95	766.61	877.90
D. Ancillary Support Services	654.38	572.11	543.29
E. Other	1,180.00	743.83	489.25
II. District Costs	337.63	331.78	288.60

TABLE V B (continued)
1997-98 All Grades Reading
Middle Schools
by Level of Performance

TOTAL Spending per pupil - SPECIAL ED (full-time special education dollars per full-time special education student)	17,296.92	18,688.14	23,494.55
I. Direct Services to Schools	16,024.62	17,416.32	22,261.43
A. Classroom Instruction	8,224.63	9,051.20	11,243.26
i. Teachers	6,653.64	7,192.67	8,835.67
ii. Ed Paraprofessionals	882.28	1,299.88	1,915.23
iii. Textbooks	104.06	84.51	69.20
iv. Librarians/Library Books	8.37	8.83	5.79
v. Professional Development	313.44	272.23	270.60
vi. Other	262.84	193.08	146.76
B. Instructional Support Services	3,564.78	3,986.07	4,684.16
C. Leadership/Supervision/Support	1,253.01	1,112.63	877.50
D. Ancillary Support Services	1,969.86	2,583.02	4,950.98
E. Other	1,012.33	683.40	505.54
II. District Costs	263.45	264.96	202.46
STUDENT COUNTS			
Means			
All Students (SBER)	779.05	1,007.89	1,050.00
General Education Students (SBER)	689.84	937.62	997.09
Part-time Special Education (SBER)	48.58	73.67	68.70
Full-time Special Education (SBER)	89.21	70.27	52.91
Sums			
All Students (SBER)	29,604.00	160,254.00	34,650.00
General Education Students (SBER)	26,214.00	149,081.00	32,904.00
Part-time Special Education (SBER)	1,846.00	11,713.00	2,267.00
Full-time Special Education (SBER)	3,390.00	11,173.00	1,746.00
NUMBER OF SCHOOLS	38	159	33

* The source for these variables is the Annual School Reports which contain student enrollment counts that differ slightly from the School Based Expenditure Reports (SBER).